



DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[RTID 0648-XB757]

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Kitty Hawk Wind Marine Site Characterization Surveys, North Carolina and Virginia

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; proposed incidental harassment authorization; request for comments on proposed authorization and possible renewal.

SUMMARY: NMFS has received a request from Kitty Hawk Wind for authorization to take marine mammals incidental to marine site characterization surveys offshore and in state waters of North Carolina. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-time, one-year renewal that could be issued under certain circumstances and if all requirements are met, as described in **Request for Public Comments** at the end of this notice. NMFS will consider public comments prior to making any final decision on the issuance of the requested MMPA authorizations and agency responses will be summarized in the final notice of our decision.

DATES: Comments and information must be received no later than [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service and should be submitted via email to *ITP.Daly@noaa.gov*.

Instructions: NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period.

Comments, including all attachments, must not exceed a 25-megabyte file size. All comments received are a part of the public record and will generally be posted online at *www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act* without change. All personal identifying information (*e.g.*, name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

FOR FURTHER INFORMATION CONTACT: Jaclyn Daly, Office of Protected Resources, NMFS, (301) 427-8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the “take” of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is

limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other “means of effecting the least practicable adverse impact” on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stocks for taking for certain subsistence uses (referred to in shorthand as “mitigation”); and requirements pertaining to the mitigation, monitoring and reporting of the takings are set forth. The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216-6A, NMFS must review our proposed action (*i.e.*, the issuance of an IHA) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (IHAs with no anticipated serious injury or mortality) of the Companion Manual for NAO 216-6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has preliminarily determined that the issuance of the proposed IHA qualifies to be categorically excluded from further NEPA review.

We will review all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the IHA request.

Summary of Request

On August 16, 2021, NMFS received a request from Kitty Hawk Wind, a subsidiary of Avangrid Renewables (Avangrid), for an IHA to take marine mammals incidental to conducting marine site characterization surveys off of the Atlantic Coast. Kitty Hawk Wind's overall lease area (OCS-A 0508) is located approximately 44 kilometers (km) offshore of Corolla, North Carolina, in Federal waters. The proposed survey activities will occur within the wind development area (WDA) and along the electric cable corridor (ECC) to landfall locations in North Carolina and Virginia. The application was deemed adequate and complete on January 13, 2022. Kitty Hawk Wind's request is for take of a small number of seventeen species of marine mammals, by Level B harassment only. Neither Kitty Hawk Wind nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued an IHA to Avangrid for similar work in the same geographic area on June 3, 2019 (84 FR 31032) with effective dates from June 1, 2019 through May 31, 2020. Avangrid complied with all the requirements (*e.g.*, mitigation, monitoring, and reporting) of the previous IHA and information regarding their monitoring results may be found in the **Estimated Take** section. Avangrid's final marine mammal monitoring report, dated January 7, 2021, submitted pursuant to that IHA can be found at <https://www.fisheries.noaa.gov/action/incidental-take-authorization-avangrid-renewables-llc-marine-site-characterization-surveys>.

On July 21, 2021, NMFS issued another IHA to Kitty Hawk Wind for a short survey duration which was effective from July 23, 2021 through October 31, 2021. The reporting for that IHA will be submitted to NMFS prior to us making a final decision on the newly requested IHA.

Description of Proposed Activity

Overview

Kitty Hawk Wind is requesting an IHA authorizing the take, by Level B harassment only, of 17 species of marine mammals incidental to marine site characterization surveys, specifically in association with the use of high-resolution geophysical (HRG) survey equipment in the Atlantic Ocean off of North Carolina and Virginia (we note survey work extending into Virginia is very limited). Kitty Hawk will also conduct surveys in the inshore sounds of North Carolina, include Bogue, Pamlico, Albemarle, and Currituck Sounds (as part of the ECC); however, those surveys will use equipment operating at frequencies above 180 kHz (outside marine mammal hearing range) and therefore will not result in harassment to marine mammals. For this reasons, survey work in inshore sounds is not further analyzed in this notice.

The surveys will support offshore wind development in 60 percent of the Kitty Hawk South lease area (OCS-A 0508) in the northwest corner closest to the North Carolina shoreline (approximately 198 square kilometers (km²)). Exposure to noise from the surveys may cause behavioral changes in marine mammals (*e.g.*, avoidance, increased swim speeds, etc.) rising to the level of take (Level B harassment) as defined under the MMPA.

In addition to Kitty Hawk South surveys, there will be a small amount of residual survey effort from the Kitty Hawk North WDA and ECC included in this survey effort due to previous inability to complete previous surveys as a result of unsuitable weather (Figure 1).

Dates and Duration

Kitty Hawk Wind plans to commence the surveys in April 2021 and continue for one year. Based on 24-hour operations, the estimated duration of the HRG survey activities (excluding those in inshore sounds) will be 273 vessel days which represents

the sum of the total number of days each vessel operates (not calendar days). Kitty Hawk intends to complete the surveys prior to November 2022 to minimize impacts to migrating North Atlantic right whales; however, the analysis in the application and this proposed IHA considers the potential for work to occur year-round.

Specific Geographic Region

The majority of Kitty Hawk Wind's survey activities will occur within the Kitty Hawk South WDA (approximately 297 km² of the approximately 495 km² Lease Area) and along the offshore ECC (Figure 1). Kitty Hawk will also complete surveys along the Kitty Hawk North ECC (Figure 1) as poor weather prohibited completion of this work under the 2021 IHA. Water depths across the Survey Area range from shallow water areas (0 m) near the offshore ECC landfall to approximately 20 to 50 meters (m) in the Lease Area.

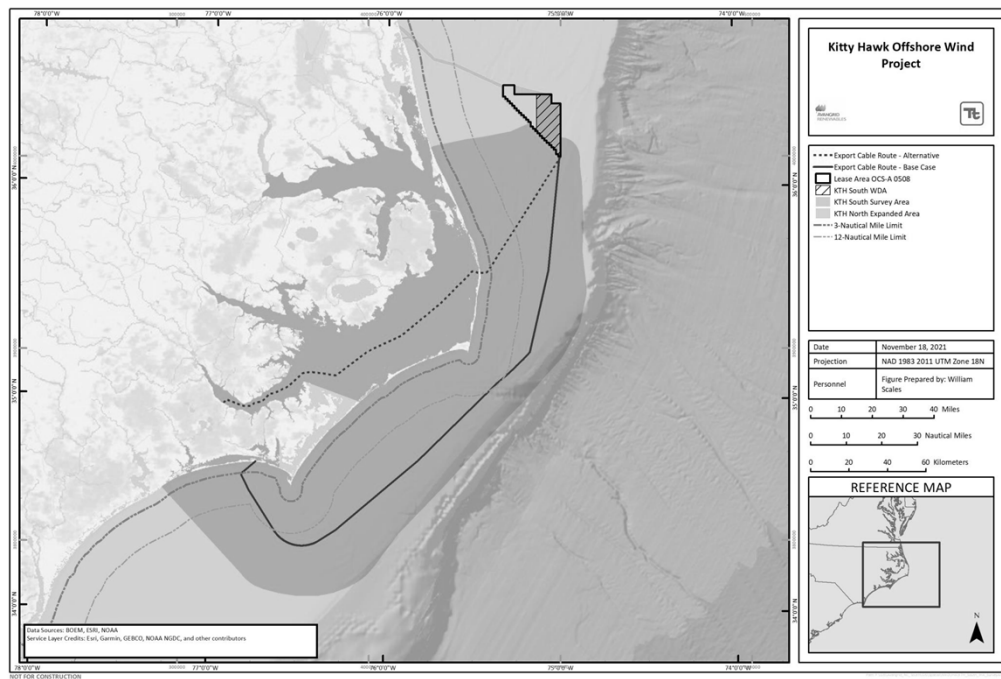


Figure 1: Project Area for the Marine Site Characterization Surveys Which Include the WDA and the Potential Submarine Cable Route Areas

Detailed Description of Specific Activity

Kitty Hawk Wind intends to eventually develop 60 percent of the southeast portion on the WDA. The purpose of Kitty Hawk Wind's marine site characterization surveys is to support the siting of the proposed wind turbine generators and offshore export cables, providing a more detailed understanding of the seabed and sub-surface conditions in the WDA and export cable corridor, support the development of the Construction and Operations Plan, and meet the Bureau of Ocean Energy Management's (BOEM) data quality guidelines for the HRG, archaeological, and benthic resources surveys.

HRG surveys are anticipated to commence no earlier than April 1, 2022, and finish in 273 vessel days, not including non-noise-generating days likely needed for weather down time. The survey activities will be supported simultaneously by three vessels, all capable of maintaining a survey speed of approximately 4 knots (7.4 kilometers per hour [km/hr]) while transiting survey lines. Vessels will maintain at least 2 km separation from each other at all times. Kitty Hawk Wind anticipates the surveys will be completed prior to November 2022; however, they have requested the IHA be effective for the entire year in case unexpected circumstances arise that necessitate surveying beyond November.

The surveys will cover approximately 50,211 line kms between the WDA, ECC, overlapping areas, and within several inshore sounds, including Bogue, Pamlico, Albemarle, and Currituck Sounds. During the surveys, Vessel A would initially collect data using the Multi-channel sparker (MCS) within the WDA. Two MCS options are currently under consideration, as noted in Table 1. Vessel A would then demobilize the MCS and remobilize data collection within both the WDA and ECC using the Triple Plate Boomer (boomer). Vessel A would also employ other equipment including the ultra-short baseline positioning system (USBL), sidescan sonar (SSS), shallow

penetration parametric sub-bottom profiler (Innomar), and multibeam echo sounder (MBES). However, this equipment has a smaller disturbance zone than the MCS or boomer or has frequency ranges above 180 kHz, outside of the hearing range of marine mammals. Vessels B and C would perform data collection within both the WDA and ECC using the boomer. Table 1 provides vessel use and survey coverage details. However, all survey equipment within inshore bays and sounds would operate above 180 kHz which is outside of marine mammal hearing ranges; therefore, no harassment is anticipated to occur from these inshore surveys and this activity is not noted in Table 1 and will not be discussed further in this notice.

Table 1. Survey Segment Details

Vessel	Location and Line kms	Predominant HRG Source	Duration
Vessel A	WDA: 7,562 kms ECC: 590	Multi-channel Seismic (Sparker)	WDA: 42 days ECC: 4
Vessel A	ECC Alternative A: 3,107 kms	Single Channel Seismic (Boomer)	17 days
Vessel A	Expanded OECC: 5,843	Single Channel Seismic (Boomer)	33 days
Vessel B	WDA/ECC: 15,715 kms	Single Channel Seismic (Boomer)	80 days
Vessel C	ECC Base Case: 16,071 kms	Single Channel Seismic (Boomer)	96 days
Total			
5 vessels	48,888 km	-	273 days

Acoustic sources planned for use during HRG survey activities proposed by Kitty Hawk Wind include the following:

- Medium penetration, impulsive sources (*i.e.*, boomers and sparkers) are used to map deeper subsurface stratigraphy. A boomer is a broadband source operating in the 3.5 Hz to 10 kHz frequency range. Sparkers create omnidirectional acoustic pulses from 50 Hz to 4 kHz. These sources are typically towed behind the vessel.

Operation of the following survey equipment types is not expected to present reasonable risk of marine mammal take, and will not be discussed further beyond the brief summaries provided below.

- Non-impulsive, parametric sub-bottom profilers (SBPs) are used for providing high data density in sub-bottom profiles that are typically required for cable routes, very shallow water, and archaeological surveys. These sources generate short, very narrow-beam (1° to 3.5°) signals at high frequencies (generally around 85-100 kHz). The narrow beamwidth significantly reduces the potential that a marine mammal could be exposed to the signal, while the high frequency of operation means that the signal is rapidly attenuated in seawater. These sources are typically deployed on a pole rather than towed behind the vessel.

- Ultra-short baseline (USBL) positioning systems are used to provide high accuracy ranges by measuring the time between the acoustic pulses transmitted by the vessel transceiver and a transponder (or beacon) necessary to produce the acoustic profile. It is a two-component system with a pole-mounted transceiver and one or several transponders mounted on other survey equipment. USBLs are expected to produce extremely small acoustic propagation distances in their typical operating configuration.

- Multibeam echosounders (MBESs) are used to determine water depths and general bottom topography. The proposed MBESs all have operating frequencies >180 kHz and are therefore outside the general hearing range of marine mammals.

- Side scan sonars (SSS) are used for seabed sediment classification purposes and to identify natural and man-made acoustic targets on the seafloor. The proposed SSSs all have operating frequencies >180 kHz and are therefore outside the general hearing range of marine mammals.

Table 2 identifies all representative survey equipment proposed for use by Kitty Hawk Wind that has the potential to result in harassment to marine mammals. The make

and model of the listed geophysical equipment may vary depending on availability and the final equipment choices will vary depending upon the final survey design, vessel availability, and survey contractor selection.

All decibel (dB) levels included in this notice are referenced to 1 micropascal. The root mean square decibel level (dB_{rms}) represents the square root of the average of the pressure of the sound signal over a given duration. The peak dB level (dB_{peak}) represents the range in pressure between zero and the greatest pressure of the signal. Operating frequencies are presented in kilohertz (kHz).

Table 2. Kitty Hawk Wind HRG Source Characteristics

HRG System	Representative HRG Survey Equipment	Operating Frequencies kilohertz (kHz)	Source Level dB _{peak}	Source Level dB _{rms}	Pulse Duration (ms)	Beam Width (degree)
Shallow penetration subbottom profiler	EdgeTech 512i	0.4 to 12	186 c/	180 c/	1.8 to 65.8	51 to 80
Medium penetration subbottom profiler a/	Applied Acoustics SBoom 750J (Triple Plate Boomer)	0.9-14	206 d/	198 d/	0.8	30 e/
Multi-channel Sparker (MCS) in flip/flop configuration b/	Applied Acoustics Dura-Spark 1000J	3.2	223 f/	213 f/	0.5 to 3 f/	180
Multi-channel Sparker (MCS) in flip/flop configuration	GeoMarine Geo-Source 800J	0.05 to 5	215	206	5.5	180

a/ While three operational powers (500/750/1000J) were modeled for the Applied Acoustics S-Boom for comparison purposes, only the 750 joules (J) operational power is anticipated to be used.

b/ Although the entire MCS array would be mobilized, the sparker sources would be activated in an alternating flip/flop sequence.

c/ The source levels are based on data from Crocker and Frantantonio (2016) for the EdgeTech 512i for 75 percent power with a bandwidth of 0.5 to 8 kHz.

d/ The source levels are based on data from Crocker and Frantantonio (2016) for the Applied Acoustics S-Boom for source setting of 750J.

e/ The beamwidth was provided in email correspondence with Neil MacDonald of Modulus Technology Ltd.

f/ The source levels are based on data from Crocker and Frantantonio (2016).

Proposed mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Proposed Mitigation** and **Proposed Monitoring and Reporting**).

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments>) and more general information about these species (e.g., physical and behavioral descriptions) may be found on NMFS's website (<https://www.fisheries.noaa.gov/find-species>).

Table 3 lists all species or stocks that may occur within the survey area and summarizes information related to the population or stock, including regulatory status under the MMPA and Endangered Species Act (ESA) and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2021). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or proposed to be authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this

region are assessed in NMFS's U.S. Atlantic and Gulf of Mexico SARs (*e.g.*, Hayes *et al.*, 2019, 2020). All values presented in Table 3 are the most recent available at the time of publication and are available in the draft 2021 SARs (available online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports>).

Table 3. Summary Information of Species within the Proposed Survey Area

Common name	Scientific name	Stock	ESA/MMPA status; Strategic (Y/N) ¹	Stock abundance (CV, N _{min} , most recent abundance survey) ²	PBR	Annual M/SI ³
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Balaenidae						
North Atlantic right whale	<i>Eubalaena glacialis</i>	Western North Atlantic	E/D; Y	368 (-; 356; 2020)	0.8	18.6
Family Balaenopteridae (rorquals)						
Humpback whale	<i>Megaptera novaeangliae</i>	Gulf of Maine	-/-; Y	1,393 (0; 1,375; 2016)	22	58
Fin whale	<i>Balaenoptera physalus</i>	Western North Atlantic	E/D; Y	6,802 (0.24; 5,573; 2016)	11	2.35
Sei whale	<i>Balaenoptera borealis</i>	Nova Scotia	E/D; Y	6,292 (1.02; 3,098; 2016)	6.2	1.2
Minke whale	<i>Balaenoptera acutorostrata</i>	Canadian East Coast	-/-; N	21,968 (0.31; 17,002; 2016)	170	10.6
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Ziphiidae						
Cuvier's beaked Whale	<i>Ziphius cavirostris</i>	Western North Atlantic	-/-; N	5,744 (0.36, 4,282, 2016)	43	0.2
Blainville's beaked Whale	<i>Mesoplodon densirostris</i>	Western North Atlantic	-/-; N	10,107 (0.27, 8,085, 2016)	81	0
True's beaked whale	<i>Mesoplodon mirus</i>	Western North Atlantic	-/-; N		81	0
Gervais' beaked whale	<i>Mesoplodon europaeus</i>	Western North Atlantic	-/-; N		81	0

Sowerby's beaked whale	<i>Mesoplodon bidens</i>	Western North Atlantic	-/-; N		81	0
Family Delphinidae						
Long-finned pilot whale	<i>Globicephala melas</i>	Western North Atlantic	-/-; N	39,215 (0.30; 30,627; See SAR)	306	21
Short finned pilot whale	<i>Globicephala macrorhynchus</i>	Western North Atlantic	-/-; Y	28,924 (0.24; 23,637; 2016)	236	160
Bottlenose dolphin	<i>Tursiops truncatus</i>	Western North Atlantic Offshore	-/-; N	62,851 (0.23; 51,914, 2016)	519	28
		W.N.A. Southern Migratory Coastal	-/-; Y	6,639 (0.41, 4,759, 2016)	48	12.2-21.5
Common dolphin	<i>Delphinus delphis</i>	Western North Atlantic	-/-; N	172,947 (0.21; 145,216; 2016)	1,452	399
Atlantic spotted dolphin	<i>Stenella frontalis</i>	Western North Atlantic	-/-; N	39,921 (0.27; 32,032; 2012)	320	0
Risso's dolphin	<i>Grampus griseus</i>	Western North Atlantic	-/-; N	35,493 (0.19; 30,289; 2016)	303	54.3
Family Phocoenidae (porpoises)						
Harbor porpoise	<i>Phocoena phocoena</i>	Gulf of Maine/Bay of Fundy	-/-; N	95,543 (0.31; 74,034; 2016)	851	217

¹ ESA status: Endangered (E), Threatened (T) / MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

² NMFS marine mammal stock assessment reports online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region>. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable.

³ These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, ship strike). Annual M/SI often

cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

As indicated above, all 17 species (with 18 managed stocks) in Table 3 temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur. In addition to what is included in Sections 3 and 4 of the application, the SARs, and NMFS' website, further detail informing the baseline for select species (*i.e.*, information regarding current Unusual Mortality Events (UME) and important habitat areas) is provided below. We also provide a brief summary of sighting data from Kitty Hawk.

North Atlantic Right Whale

The North Atlantic right whale is considered one of the most critically endangered populations of large whales in the world and has been listed as a Federal endangered species since 1970. The Western Atlantic stock is considered depleted under the MMPA (Hayes et al. 2021). There is a recovery plan (NOAA Fisheries 2017) for the right whale and recently there was a five-year review of the species (NOAA Fisheries 2017). The right whale had a 2.8 percent recovery rate between 1990 and 2011 (Hayes et al. 2021).

Elevated North Atlantic right whale mortalities have occurred since June 7, 2017, along the U.S. and Canadian coast. This event has been declared an UME, with human interactions, including entanglement in fixed fishing gear and vessel strikes, implicated in at least 15 of the mortalities thus far. As of January 26, 2021, a total of 34 confirmed dead stranded whales (21 in Canada; 13 in the United States) have been documented. The cumulative total number of animals in the North Atlantic right whale UME has been updated to 50 individuals to include both the confirmed mortalities (dead stranded or floaters) (n=34) and seriously injured free-swimming whales (n=16) to better reflect the confirmed number of whales likely removed from the population during the UME and more accurately reflect the population impacts. More information is available online

at: www.fisheries.noaa.gov/national/marine-life-distress/2017-2021-north-atlantic-right-whale-unusual-mortality-event.

The offshore waters of North Carolina, including waters of the Survey Area, are used as part of the migration corridor for right whales. Right whales occur here during seasonal movements north or south between their feeding and breeding grounds (Firestone et al. 2008; Knowlton et al. 2002). Right whales have been observed in or near North Carolina waters from October through December, as well as in February and March, which coincides with the migratory timeframe for this species (Knowlton et al. 2002). They have been acoustically detected off Georgia and North Carolina in 7 of 11 months monitored (Hodge et al. 2015) and other recent passive acoustic studies of right whales off the Virginia coast demonstrate their year-round presence in Virginia (Salisbury et al. 2018), with increased detections in fall and late winter/early spring. They are typically most common in the spring (late March) when they are migrating north and, in the fall (*i.e.*, October and November) during their southbound migration (NOAA Fisheries 2017).

Seasonal management areas (SMA) are designated within portions of the proposed survey area. A SMA exists from November 1 through April 30, annually, in a contiguous area 20 nautical miles (nm; 37 km) from shore between Wilmington, North Carolina to Brunswick, Georgia. A SMA also exists for the same time period within a 20-nm (37 km) radius of the Ports of Hampton Roads and Morehead City/Beaufort, NC. While the WDA does not overlap with these SMAs, vessel transit routes and portions of the ECCs that will be surveyed do spatially overlap with these SMAs. Kitty Hawk intends to complete the surveys before November 1, 2022. However, we assume that the surveys may extend throughout the year in our analyses. The implementing regulations identifying SMAs (50 CFR 224.105) also establish a process under which dynamic management areas (DMAs) can be established based on North Atlantic right whale

sightings. NMFS has established a Slow Zone program in 2020 that notifies vessel operators of areas where maintaining speeds of 10 knots or less can help protect right whales from vessel collisions. Right Whale Slow Zones are established around areas where right whales have been recently seen or heard; these areas are identical to DMAs when triggered by right whale visual sightings but they can also be established when right whale detections are confirmed from acoustic receivers. More information on SMAs, DMAs, and Slow Zones can be found at

<https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales#:~:text=Right%20Whale%20Slow%20Zones%20is,right%20whales%20have%20been%20detected.>

In 2020, NMFS finalized a report evaluating the conservation value and economic and navigational safety impacts of the 2008 North Atlantic right whale vessel speed regulations. The report evaluates four aspects of the right whale vessel speed rule: biological efficacy, mariner compliance, impacts to navigational safety, and economic cost to mariners. NMFS continues to evaluate its North Atlantic right whale vessel strike reduction programs, both regulatory and non-regulatory. NMFS anticipates releasing a proposed rule modifying the right whale speed regulations in Spring 2022 to further address the risk of mortality and serious injury from vessel collisions in U.S. waters.

The proposed survey area is also recognized as a migratory corridor Biologically Important Area (BIA) for North Atlantic right whales (effective March-April and November-December) that extends from Massachusetts to Florida (LeBrecque *et al.*, 2015). This important migratory area is approximately 269,488 km² in and is comprised of the waters of the continental shelf offshore the East Coast of the United States, extending from Florida through Massachusetts. No critical habitat is designated within the survey area.

Humpback Whale

Humpback whales are found worldwide in all oceans. Humpback whales were listed as endangered under the Endangered Species Conservation Act (ESCA) in June 1970. In 1973, the ESA replaced the ESCA, and humpbacks continued to be listed as endangered. NMFS recently evaluated the status of the species, and on September 8, 2016, NMFS divided the species into 14 distinct population segments (DPS), removed the current species-level listing, and in its place listed four DPSs as endangered and one DPS as threatened (81 FR 62259; September 8, 2016). The remaining nine DPSs were not listed. The West Indies DPS, which is not listed under the ESA, is the only DPS of humpback whale that is expected to occur in the survey area.

Since January 2016, elevated humpback whale mortalities have occurred along the Atlantic coast from Maine to Florida. Partial or full necropsy examinations have been conducted on approximately half of the 155 known cases. Of the whales examined, about 50 percent had evidence of human interaction, either ship strike or entanglement. While a portion of the whales have shown evidence of pre-mortem vessel strike, this finding is not consistent across all whales examined and more research is needed. NOAA is consulting with researchers that are conducting studies on the humpback whale populations, and these efforts may provide information on changes in whale distribution and habitat use that could provide additional insight into how these vessel interactions occurred. Three previous UMEs involving humpback whales have occurred since 2000, in 2003, 2005, and 2006. More information is available at: www.fisheries.noaa.gov/national/marine-life-distress/2016-2021-humpback-whale-unusual-mortality-event-along-atlantic-coast.

Minke Whale

Minke whales can be found in temperate, tropical, and high-latitude waters. The Canadian East Coast stock can be found in the area from the western half of the Davis

Strait (45° W) to the Gulf of Mexico (Hayes et al., 2020). This species generally occupies waters less than 100 m deep on the continental shelf. Little is known about minke whales' specific movements through the mid-Atlantic region; however, there appears to be a strong seasonal component to minke whale distribution, with acoustic detections indicating that they migrate south in mid-October to early November, and return from wintering grounds starting in March through early April (Hayes *et al.*, 2020). Northward migration appears to track the warmer waters of the Gulf Stream along the continental shelf, while southward migration is made farther offshore (Risch *et al.*, 2014). During Kitty Hawk Wind's 2019 and 2020 marine site characterization surveys, one minke whale was detected, this detection occurred while the vessel was in transit and located north of the project area off New Jersey.

Since January 2017, elevated minke whale mortalities have occurred along the Atlantic coast from Maine through South Carolina, with a total of 122 strandings recorded through December 2021. This event has been declared a UME. Full or partial necropsy examinations were conducted on more than 60 percent of the whales. Preliminary findings in several of the whales have shown evidence of human interactions or infectious disease, but these findings are not consistent across all of the whales examined, so more research is needed. More information is available at: www.fisheries.noaa.gov/national/marine-life-distress/2017-2021-minke-whale-unusual-mortality-event-along-atlantic-coast.

Marine Mammal Habitat

The survey area primarily includes waters inshore and offshore of North Carolina with a very small amount of work extending into southern Virginia. As described above, a migratory BIA for North Atlantic right whales is recognized within the project area in November through December and March through April. This BIA extends along the

entire east coast. A calving BIA is located south of the WDA and potential cable corridors; therefore, no impacts to this BIA are anticipated.

No other BIAs are recognized nor is critical habitat designated in the project area; however, the project area is a migratory corridor for other large whale species (*e.g.*, humpback whales) and offers habitat for various activities such as socializing and foraging for smaller cetaceans such as delphinids.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 dB threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 4.

Table 4. Marine Mammal Hearing Groups (NMFS, 2018)

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, <i>Kogia</i> , river dolphins, cephalorhynchid, <i>Lagenorhynchus cruciger</i> & <i>L. australis</i>)	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz
* Represents the generalized hearing range for the entire group as a composite (<i>i.e.</i> , all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall <i>et al.</i> 2007) and PW pinniped (approximation).	

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006; Kastelein *et al.*, 2009; Reichmuth and Holt, 2013).

For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. Seventeen marine mammal species (all cetaceans) have the reasonable potential to be taken by the survey activities (Table 5). Of the cetacean species that may be present, 5 are classified as low-frequency cetaceans (*i.e.*, all mysticete species), 11 are classified as mid-frequency cetaceans (*i.e.*, all delphinid species), 1 is classified as a high-frequency cetacean (*i.e.*, harbor porpoise).

Potential Effects of Specified Activities on Marine Mammals and their Habitat

This section includes a summary of the ways that Kitty Hawk Wind's specified activity may impact marine mammals and their habitat. Detailed descriptions of the potential effects of similar specified activities have been provided in other recent **Federal Register** notices, including for survey activities using the same methodology and over a similar amount of time (*e.g.*, 85 FR 37848, June 24, 2020; 85 FR 45578, July 29, 2020; 85 FR 48179, August 10, 2020; 86 FR 11239, February 24, 2021, 86 FR 28061, May 25,

2021). No significant new information is available, and we refer the reader to these documents rather than repeating the details here. The **Estimated Take** section includes a quantitative analysis of the number of individuals that are expected to be taken by Kitty Hawk Wind's activity. The **Negligible Impact Analysis and Determination** section considers the potential effects of the specified activity, the **Estimated Take** section, and the **Proposed Mitigation** section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

Summary on Specific Potential Effects of Acoustic Sound Sources

Underwater sound from active acoustic sources can include one or more of the following: temporary or permanent hearing impairment, non-auditory physical or physiological effects, behavioral disturbance, stress, and masking. The degree of effect is intrinsically related to the signal characteristics, received level, distance from the source, and duration of the sound exposure. Marine mammals exposed to high-intensity sound, or to lower-intensity sound for prolonged periods, can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Finneran, 2015). TS can be permanent (PTS), in which case the loss of hearing sensitivity is not fully recoverable, or temporary (TTS), in which case the animal's hearing threshold would recover over time (Southall *et al.*, 2007).

Animals in the vicinity of Kitty Hawk Wind's proposed HRG survey activity are unlikely to incur even TTS due to the characteristics of the sound sources, which include relatively low source levels (176 to 205 dB re 1 μ Pa-m) and generally very short pulses and potential duration of exposure. These characteristics mean that instantaneous exposure is unlikely to cause TTS, as it is unlikely that exposure would occur close enough to the vessel for received levels to exceed peak pressure TTS criteria, and that the cumulative duration of exposure would be insufficient to exceed cumulative sound

exposure level (SEL) criteria. Even for high-frequency cetacean species (*e.g.*, harbor porpoises), which have the greatest sensitivity to potential TTS, individuals would have to make a very close approach and also remain very close to vessels operating these sources in order to receive multiple exposures at relatively high levels, as would be necessary to cause TTS. Intermittent exposures—as would occur due to the brief, transient signals produced by these sources—require a higher cumulative SEL to induce TTS than would continuous exposures of the same duration (*i.e.*, intermittent exposure results in lower levels of TTS). Moreover, most marine mammals would more likely avoid a loud sound source rather than swim in such close proximity as to result in TTS. Kremser *et al.* (2005) noted that the probability of a cetacean swimming through the area of exposure when a sub-bottom profiler emits a pulse is small—because if the animal was in the area, it would have to pass the transducer at close range in order to be subjected to sound levels that could cause TTS and would likely exhibit avoidance behavior to the area near the transducer rather than swim through at such a close range. Further, the restricted beam shape of many of HRG survey devices planned for use (Table 1) makes it unlikely that an animal would be exposed more than briefly during the passage of the vessel.

Behavioral disturbance may include a variety of effects, including subtle changes in behavior (*e.g.*, minor or brief avoidance of an area or changes in vocalizations), more conspicuous changes in similar behavioral activities, and more sustained and/or potentially severe reactions, such as displacement from or abandonment of high-quality habitat. Behavioral responses to sound are highly variable and context-specific and any reactions depend on numerous intrinsic and extrinsic factors (*e.g.*, species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day), as well as the interplay between factors. Available studies show wide variation in

response to underwater sound; therefore, it is difficult to predict specifically how any given sound in a particular instance might affect marine mammals perceiving the signal.

In addition, sound can disrupt behavior through masking, or interfering with, an animal's ability to detect, recognize, or discriminate between acoustic signals of interest (*e.g.*, those used for intraspecific communication and social interactions, prey detection, predator avoidance, navigation). Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher intensity, and may occur whether the sound is natural (*e.g.*, snapping shrimp, wind, waves, precipitation) or anthropogenic (*e.g.*, shipping, sonar, seismic exploration) in origin. Marine mammal communications would not likely be masked appreciably by the acoustic signals given the directionality of the signals for most HRG survey equipment types planned for use (Table 1) and the brief period when an individual mammal is likely to be exposed.

Sound may affect marine mammals through impacts on the abundance, behavior, or distribution of prey species (*e.g.*, crustaceans, cephalopods, fish, zooplankton) (*i.e.*, effects to marine mammal habitat). Prey species exposed to sound might move away from the sound source, experience TTS, experience masking of biologically relevant sounds, or show no obvious direct effects. The most likely impacts (if any) for most prey species in a given area would be temporary avoidance of the area. Surveys using active acoustic sound sources move through an area relatively quickly, limiting exposure to multiple pulses. In all cases, sound levels would return to ambient once a survey ends and the noise source is shut down and, when exposure to sound ends, behavioral and/or physiological responses are expected to end relatively quickly. Finally, the HRG survey equipment will not have significant impacts to the seafloor and does not represent a source of pollution.

Vessel Strike

Vessel collisions with marine mammals, or ship strikes, can result in death or serious injury of the animal. These interactions are typically associated with large whales, which are less maneuverable than are smaller cetaceans or pinnipeds in relation to large vessels. Ship strikes generally involve commercial shipping vessels, which are generally larger and of which there is much more traffic in the ocean than geophysical survey vessels. Jensen and Silber (2004) summarized ship strikes of large whales worldwide from 1975-2003 and found that most collisions occurred in the open ocean and involved large vessels (*e.g.*, commercial shipping). For vessels used in geophysical survey activities, vessel speed while towing gear is typically only 4-5 knots. At these speeds, both the possibility of striking a marine mammal and the possibility of a strike resulting in serious injury or mortality are so low as to be discountable. At average transit speed for geophysical survey vessels, the probability of serious injury or mortality resulting from a strike is less than 50 percent. However, the likelihood of a strike actually happening is again low given the smaller size of these vessels and generally slower speeds. Notably in the Jensen and Silber study, no strike incidents were reported for geophysical survey vessels during that time period.

The potential effects of Kitty Hawk Wind's specified survey activity are expected to be limited to Level B behavioral harassment. No permanent or temporary auditory effects, or significant impacts to marine mammal habitat, including prey, are expected.

Estimated Take

This section provides an estimate of the number of incidental takes proposed for authorization through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the

potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to noise from certain HRG acoustic sources. Based primarily on the characteristics of the signals produced by the acoustic sources planned for use, Level A harassment is neither anticipated (even absent mitigation), nor proposed to be authorized. Consideration of the anticipated effectiveness of the mitigation measures (*i.e.*, exclusion zones and shutdown measures), discussed in detail below in the **Proposed Mitigation** section, further strengthens the conclusion that Level A harassment is not a reasonably anticipated outcome of the survey activity. As described previously, no serious injury or mortality is anticipated or proposed to be authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the proposed take estimates.

Acoustic Thresholds

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment for non-explosive sources – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 160 dB re 1 μ Pa (rms) for the impulsive sources (*i.e.*, sparkers and boomers) evaluated here for Kitty Hawk Wind's proposed activity.

Level A Harassment – NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). For more information, see NMFS' 2018 Technical Guidance, which may be accessed at www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance.

Kitty Hawk Wind's proposed activity includes the use of impulsive sources. However, as discussed above, NMFS has concluded that Level A harassment is not a reasonably likely outcome for marine mammals exposed to noise through use of the sources proposed for use here, and the potential for Level A harassment is not evaluated further in this document. Please see Kitty Hawk Wind's application for details of a quantitative exposure analysis exercise, *i.e.*, calculated Level A harassment isopleths and estimated Level A harassment exposures. Kitty Hawk Wind did not request authorization of take by Level A harassment, and no take by Level A harassment is proposed for authorization by NMFS.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

Sources that have the potential to result in marine mammal harassment include sparkers and boomers. These are impulsive sources. The basis for the HRG survey take estimate is the number of marine mammals that would be exposed to sound levels in excess of Level B harassment criteria for impulsive and/or intermittent noise (160 dBrms). Distances to thresholds were calculated assuming a propagation loss rate of $15\log R$, also known as practical spreading. The resulting distances to NMFS Level B harassment isopleth (160 dBrms) are presented in Table 5.

Kitty Hawk then considered track line coverage and isopleth distance to estimate the maximum ensonified area over a 24-hr period, also referred to as the zone of influence (ZOI). The estimated distance of the daily vessel track line was determined using the estimated average speed of the vessel (4 knots [7.4 km/hr]) and the 24-hour operational period. Within each survey segment, the ZOI was calculated using the respective maximum distance to the Level B harassment threshold and estimated daily

vessel track of 177.792 km. During the use of the Applied Acoustics Dura-Spark 1000J MCS, estimates of take have been based on a maximum Level B harassment distance of 445 m from the sound source resulting in an ensonified area (*i.e.*, ZOI) around the survey equipment of 158.857 km² per day over a projected survey period of 45 days (Table 5). During the use of Applied Acoustics S-Boom (boomer), estimates of take have been based on a maximum Level B harassment distance of 13.49 m from the sound source resulting in an ensonified area (*i.e.*, ZOI) around the survey equipment of 4.765 km² per day over a projected survey period of 273 days (Table 5).

The ZOI is a representation of the maximum extent of the ensonified area around a sound source over a 24-hr period. The ZOI was calculated per the following formula:

$$\text{ZOI} = (\text{Distance/day} \times 2\pi) + \pi r^2$$

Table 5. Level B Harassment Threshold Distances and Ensonified Area

Dominant Survey Equipment	Number of Active Survey Days	Estimated Total Line Distance (km)	Estimated Distance per Day (km)	Distance to Threshold	ZOI per Day (km ²)
MCS	47	8,152	177.792	445	158.857
Boomer	226	42,059		13.4	4.765

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations.

Habitat-based density models produced by the Duke University Marine Geospatial Ecology Laboratory (Roberts *et al.*, 2016, 2017, 2018, 2020) represent the best available information regarding marine mammal densities in the survey area. The density data presented by Roberts *et al.* (2016, 2017, 2018, 2020) incorporates aerial and shipboard line-transect survey data from NMFS and other organizations and incorporates data from 8 physiographic and 16 dynamic oceanographic and biological covariates, and controls for the influence of sea state, group size, availability bias, and perception bias on

the probability of making a sighting. These density models were originally developed for all cetacean taxa in the U.S. Atlantic (Roberts *et al.*, 2016). In subsequent years, certain models have been updated based on additional data as well as certain methodological improvements. More information is available online at

<https://seamap.env.duke.edu/models/Duke/EC/>. Marine mammal density estimates in the survey area (animals/km²) were obtained using the most recent model results for all taxa (Roberts *et al.*, 2016, 2017, 2018, 2020). The updated models incorporate additional sighting data, including sightings from NOAA's Atlantic Marine Assessment Program for Protected Species (AMAPPS) surveys.

Monthly density grids (*e.g.* rasters) for each species were overlain with the Survey Area and values from all grid cells that overlapped the Survey Area were averaged to determine monthly mean density values for each species. Monthly mean density values within the Survey Area were averaged by season (Winter [December, January, February], Spring [March, April, May], Summer [June, July, August], Fall [September, October, November]) to provide seasonal density estimates. Within each survey segment (WDA and offshore export cable corridor), the highest seasonal density estimates during the duration of the proposed survey were used to estimate take.

Take Calculation and Estimation

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

For most species, the proposed take amount is equal to the calculated take amount resulting from the following equation: $D \times ZOI \times d$ where d equals the number of days each source is dominant (*i.e.*, 47 days for the sparker and 226 days for the boomer). We note the densities provided in Table 5 represent the number of animals/100 km; therefore, the density is normalized to 1km in the equation. However, for some species, this equation does not reflect those species that can travel in large groups- an important

parameter to consider that is not captured by density values. The equation also does not capture the propensity of some delphinid species to be attracted to the vessel and bowride. Therefore, to account for these real-world situations, the proposed take is a product of group size. For large groups of spotted and common dolphins knowing their affinity for bow riding (and therefore coming very close to the vessel), Kitty Hawk Wind assumed one group could be taken each day of sparker and/or boomer operations (273). Based on marine mammal sighting data collected during previous survey efforts, as described in Avangrid’s previous monitoring report, Kitty Hawk Wind assumes an average group size for spotted dolphins is 16 in the survey area. For common dolphins, the overall average reported group size was 4 in all survey areas but the average group size during prior geotechnical surveys was 17 individuals. For Risso’s dolphin and pilot whales, average group size for these species are 25 and 20, respectively (Reeves *et al.* 2002).

For bottlenose dolphin densities, Roberts et al. (2016a, 2016b, 2017, 2018, 2020) does not differentiate by individual stock. The WDA is located within depths exceeding 20 m. Therefore, given the southern coastal migratory stock propensity to be found shallower than the 20 m depth isobath north of Cape Hatteras (Reeves et al. 2002; Waring et al. 2016), take of the southern coastal migratory stock would be unlikely. Therefore, all work in the WDA was allocated to the offshore stock.

Table 6 provides the total amount of take calculated and proposed to be authorized in the IHA. For details of take per survey segment, please see Table 8 in Kitty Hawk’s application.

Table 6. Marine Mammal Density and Take Estimates

Species	Stock	Calculated Take	Proposed Take	Percent of Population
N. Atlantic right whale	Western North Atlantic	2	2	<1
Humpback whale	Gulf of Maine	15	15	<1

Fin whale	Western North Atlantic	18	18	<1
Sei whale	Western North Atlantic	1	1	
Minke whale	Canadian East Coast	22	22	<1
Pilot whales	Western North Atlantic	32	32	<1
Cuvier's Beaked Whale	Western North Atlantic	5	5	<1
Mesoplodon spp.	Western North Atlantic	3	3	<1
Bottlenose dolphin	Western North Atlantic, offshore,	823	823	<1
Bottlenose dolphin	Western North Atlantic southern migratory coastal	226	226	6.0
Common dolphin a/	Western North Atlantic	365	9,282	5.3
Atlantic spotted dolphin a/	Western North Atlantic	418	8736	<1
Risso's dolphin a/	Western North Atlantic	8	25	<1
Rough-toothed dolphin a/	Western North Atlantic	1	20	14.7
Harbor porpoise	Gulf of Maine/Bay of Fundy	39	39	<1
a/ Multiplier applied to increase calculated take to account for two large group size, an average pod size of 16 individuals encountered in Survey Area (Milne 2019, 2021) has been included for spotted dolphin and 17 individuals have also been included for common dolphin (Milne 2019, 2021). Pod size adjustments of 25 and 20 individuals (average pod size from Reeves et al. [2002]) have been included for Risso's and rough-toothed dolphins, respectively.				

Proposed Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to the activity, and other means of effecting the least practicable impact on the species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of the species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting the activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11)).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned); and

(2) The practicability of the measures for applicant implementation, which may consider such things as cost and impact on operations.

Mitigation for Marine Mammals and their Habitat

NMFS proposes that the following mitigation measures be implemented during Kitty Hawk Wind's planned marine site characterization surveys.

Pre-Clearance of the Shutdown Zones

Kitty Hawk Wind would implement a 30-minute monitoring period of the clearance zones prior to the initiation of ramp-up of HRG equipment. During this period, the clearance zone will be monitored by the protected species observers (PSOs), using the appropriate visual technology. Ramp-up may not be initiated if any marine mammal(s) is within its respective zone. If a marine mammal is observed within the clearance zone during the pre-clearance period, ramp-up may not begin until the animal(s) has been observed exiting its respective clearance zone or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and seals, and 30 minutes for all other species).

Ramp-Up

Where technically feasible (*e.g.*, equipment is not on a binary on/off switch), a ramp-up procedure will be used for HRG survey equipment capable of adjusting energy levels at the start or restart of HRG survey activities. A ramp-up would begin with the power of the smallest acoustic equipment at its lowest practical power output appropriate for the survey. When technically feasible the power would then be turned up and other acoustic sources added in a way such that the source level would increase gradually. Ramp-up activities not begin if a marine mammal(s) enters a clearance zone(s) prior to initiating ramp-up. Ramp-up will commence when the animal has been observed exiting the exclusion zone or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small dolphins and seals and 30 minutes for all other marine mammal species). The ramp-up procedure will be used at the beginning of HRG survey activities to provide additional protection to marine mammals near the survey area by allowing them to vacate the area prior to the commencement of survey equipment use.

Marine Mammal Shutdown Zones

An immediate shutdown of a sparker or boomer would be required if a marine mammal is sighted entering or within its respective exclusion zone. The vessel operator must comply immediately with any call for shutdown by the Lead PSO. Any disagreement between the Lead PSO and vessel operator should be discussed only after shutdown has occurred. Subsequent restart of the survey equipment can be initiated if the animal has been observed exiting its respective exclusion zone or 30 minutes has passed without subsequent detection of a large whale or 15 minutes for a smaller cetacean or seal. Table 6 provides the required shutdown zones.

Table 6. Clearance and Shutdown Zones During Sparker and Boomer Use

Species	Clearance Zone (m)	Shutdown Zone (m)
North Atlantic right whale	500	500
All other ESA-listed marine mammals	500	450
Non-ESA marine mammals ¹	100	100

Shutdown Procedures

The vessel operator must comply immediately with any call for shutdown by the Lead PSO. Any disagreement between the Lead PSO and vessel operator should be discussed only after shutdown has occurred. Subsequent restart of the survey equipment can be initiated if the animal has been observed exiting its respective shutdown zone or the relevant time period has lapsed without re-detection (15 minutes for small odontocetes and seals, and 30 minutes for all other species).

The shutdown requirement would be waived for small delphinids of the following genera: *Delphinus*, *Stenella (frontalis* only), and *Tursiops*. Furthermore, if there is uncertainty regarding identification of a marine mammal species (*i.e.*, whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived), PSOs must use best professional judgement in making the decision to call for a shutdown. Additionally, shutdown is required if a delphinid detected in the exclusion zone and belongs to a genus other than those specified.

If the acoustic source is shut down for reasons other than mitigation (*e.g.*, mechanical difficulty) for less than 30 minutes, it may be activated again only if the PSOs have maintained constant observation and the shutdown zone is clear of marine mammals. If the source is turned off for more than 30 minutes, it may only be restarted after PSOs have cleared the shutdown zones for 30 minutes.

If a species for which authorization has not been granted, or, a species for which authorization has been granted but the authorized number of takes have been met, approaches or is observed within the Level B harassment zone (445 m), shutdown would be required.

Vessel Strike Avoidance

Kitty Hawk Wind will ensure that vessel operators and crew maintain a vigilant watch for marine mammals and slow down or stop their vessels to avoid striking these species. All personnel responsible for navigation and marine mammal observation duties will receive site-specific training on marine mammals sighting/reporting and vessel strike avoidance measures. Vessel strike avoidance measures would include the following, except under circumstances when complying with these requirements would put the safety of the vessel or crew at risk:

- Vessel operators and crews must maintain a vigilant watch for all protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any protected species. A visual observer aboard the vessel must monitor a vessel strike avoidance zone based on the appropriate separation distance around the vessel (distances stated below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to 1) distinguish protected species from other phenomena and 2) broadly to identify a marine mammal as a right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammal;

- All vessel operators will monitor the North Atlantic Right Whale Reporting Systems (*e.g.* the Early Warning System, Sighting Advisory System, and Mandatory Ship Reporting System) daily throughout the entire survey period for the presence of North Atlantic right whales during activities conducted in support of plan submittal;

- All vessel operators will comply with the 10 knot (18.5 km/hr) or less speed restrictions when operating in any SMA from November 1 through April 30;

- All vessels, regardless of size, must observe a 10-knot speed restriction in a North Atlantic right whale DMA;
- All survey vessels will maintain a separation distance of 500 m or greater from any sighted North Atlantic right whale or other ESA-listed whale;
- If underway, vessels must steer a course away from any sighted North Atlantic right whale at 10 knots (18.5 km/hr) or less until the 500 m minimum separation distance has been established. If a North Atlantic right whale is sighted in a vessel's path, or within 100 m to an underway vessel, the underway vessel must reduce speed and shift the engine to neutral. Engines will not be engaged until the North Atlantic right whale has moved outside of the vessel's path and beyond 100 m. If stationary, the vessel must not engage engines until the North Atlantic right whale has moved beyond 100 m;
- All vessels will maintain a separation distance of 100 m or greater from any sighted non-delphinid cetacean. If sighted, the vessel underway must reduce speed and shift the engine to neutral, and must not engage the engines until the non-delphinid cetacean has moved outside of the vessel's path and beyond 100 m. If a survey vessel is stationary, the vessel will not engage engines until the non-delphinid cetacean has moved out of the vessel's path and beyond 100 m;
- All vessel operators will comply with 10 knot (18.5 km/hr) or less speed restrictions when mother/calf pairs, pods, or large assemblages of non-delphinid cetaceans are observed near an underway vessel;
- All vessels will maintain a separation distance of 50 m or greater from any sighted delphinid cetacean and pinniped. Any vessel underway will remain parallel to a sighted delphinid cetacean or pinniped's course whenever possible and avoid excessive speed or abrupt changes in direction. Any vessel underway reduces vessel speed to 10 knots (18.5 km/hr) or less when pods (including mother/calf pairs) or large assemblages

of delphinid cetaceans are observed. Vessels may not adjust course and speed until the delphinid cetaceans have moved beyond 50 m and/or the abeam of the underway vessel;

- All vessels underway will not divert or alter course in order to approach any marine mammal. Any vessel underway will avoid excessive speed or abrupt changes in direction to avoid injury to the sighted cetacean or pinniped;
- All vessels must reduce their speed to 10 knots or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near a vessel underway;
- All vessels must maintain a minimum separation distance of 500 m from right whales. If a whale is observed but cannot be confirmed as a species other than a right whale, the vessel operator must assume that it is a right whale and take appropriate action;
- All vessels must maintain a minimum separation distance of 100 m from or greater from any sighted non-delphinid cetacean;
- All vessels shall attempt to maintain a separation distance of 50 m or greater from any sighted delphinid cetacean and pinniped, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel); and
- When marine mammals are sighted while a vessel is underway, the vessel shall take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area). If marine mammals are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine to neutral, not engaging the engines until animals are clear of the area. This does not apply to any vessel towing gear or any vessel that is navigationally constrained.

These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.

Project-specific training will be conducted for all vessel crew prior to the start of a survey and during any changes in crew such that all survey personnel are fully aware and understand the mitigation, monitoring, and reporting requirements. Prior to implementation with vessel crews, the training program will be provided to NMFS for review and approval. Confirmation of the training and understanding of the requirements will be documented on a training course log sheet. Signing the log sheet will certify that the crew member understands and will comply with the necessary requirements throughout the survey activities. In addition to the aforementioned measures, Kitty Hawk will abide by all marine mammal relevant conditions in the Greater Atlantic Regional Office's (GARFO) informal programmatic consultation, dated June 29, 2021 (revised September 2021), pursuant to section 7 of the ESA. These include the relevant best management practices of project design criteria (PDCs) 4, 5, and 7.

Based on our evaluation of Kitty Hawk Wind's proposed measures, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the planned survey area. Effective reporting is critical both to

compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.*, presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) action or environment (*e.g.*, source characterization, propagation, ambient noise); (2) affected species (*e.g.*, life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.*, age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.*, marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

Monitoring Measures

Visual monitoring will be performed by qualified, NMFS-approved PSOs, the resumes of whom will be provided to NMFS for review and approval prior to the start of survey activities. Kitty Hawk Wind would employ independent, dedicated, trained PSOs, meaning that the PSOs must 1) be employed by a third-party observer provider, 2) have no tasks other than to conduct observational effort, collect data, and communicate with

and instruct relevant vessel crew with regard to the presence of marine mammals and mitigation requirements (including brief alerts regarding maritime hazards), and 3) have successfully completed an approved PSO training course appropriate for their designated task.

The PSOs will be responsible for monitoring the waters surrounding each survey vessel to the farthest extent permitted by sighting conditions, including exclusion zones, during all HRG survey operations. PSOs will visually monitor and identify marine mammals, including those approaching or entering the established exclusion zones during survey activities. It will be the responsibility of the Lead PSO on duty to communicate the presence of marine mammals as well as to communicate the action(s) that are necessary to ensure mitigation and monitoring requirements are implemented as appropriate.

During all HRG survey operations (*e.g.*, any day on which use of an HRG source is planned to occur), a minimum of one PSO must be on duty during daylight operations on each survey vessel, conducting visual observations at all times on all active survey vessels during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset). Two PSOs will be on watch during nighttime operations. The PSO(s) would ensure 360° visual coverage around the vessel from the most appropriate observation posts and would conduct visual observations using binoculars and/or night vision goggles and the naked eye while free from distractions and in a consistent, systematic, and diligent manner. PSOs may be on watch for a maximum of 4 consecutive hours followed by a break of at least 2 hours between watches and may conduct a maximum of 12 hours of observation per 24-hour period. In cases where multiple vessels are surveying concurrently, any observations of marine mammals would be communicated to PSOs on all nearby survey vessels.

PSOs must be equipped with binoculars and have the ability to estimate distance and bearing to detect marine mammals, particularly in proximity to exclusion zones. Reticulated binoculars must also be available to PSOs for use as appropriate based on conditions and visibility to support the sighting and monitoring of marine mammals. During nighttime operations, night-vision goggles with thermal clip-ons and infrared technology would be used. Position data would be recorded using hand-held or vessel GPS units for each sighting.

During good conditions (*e.g.*, daylight hours; Beaufort sea state 3 or less), to the maximum extent practicable, PSOs would also conduct observations when the acoustic source is not operating for comparison of sighting rates and behavior with and without use of the active acoustic sources. Any observations of marine mammals by crew members aboard any vessel associated with the survey would be relayed to the PSO team.

Data on all PSO observations would be recorded based on standard PSO collection requirements. This would include dates, times, and locations of survey operations; dates and times of observations, location and weather; details of marine mammal sightings (*e.g.*, species, numbers, behavior); and details of any observed marine mammal behavior that occurs (*e.g.*, noted behavioral disturbances).

Reporting Measures

Within 90 days after completion of survey activities or expiration of this IHA, whichever comes sooner, a final technical report will be provided to NMFS that fully documents the methods and monitoring protocols, summarizes the data recorded during monitoring, summarizes the number of marine mammals observed during survey activities (by species, when known), summarizes the mitigation actions taken during surveys (including what type of mitigation and the species and number of animals that prompted the mitigation action, when known), and provides an interpretation of the results and effectiveness of all mitigation and monitoring. Any recommendations made

by NMFS must be addressed in the final report prior to acceptance by NMFS. All draft and final marine mammal and acoustic monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov* and *ITP.Daly@noaa.gov*. The report must contain at minimum, the following:

- PSO names and affiliations;
- Dates of departures and returns to port with port name;
- Dates and times (Greenwich Mean Time) of survey effort and times

corresponding with PSO effort;

- Vessel location (latitude/longitude) when survey effort begins and ends;

vessel location at beginning and end of visual PSO duty shifts;

- Vessel heading and speed at beginning and end of visual PSO duty shifts

and upon any line change;

- Environmental conditions while on visual survey (at beginning and end of

PSO shift and whenever conditions change significantly), including wind speed and

direction, Beaufort sea state, Beaufort wind force, swell height, weather conditions, cloud cover, sun glare, and overall visibility to the horizon;

- Factors that may be contributing to impaired observations during each

PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions);

- Survey activity information, such as type of survey equipment in

operation, acoustic source power output while in operation, and any other notes of significance (*i.e.*, pre-clearance survey, ramp-up, shutdown, end of operations, etc.)

If a marine mammal is sighted, the following information should be recorded:

- Watch status (sighting made by PSO on/off effort, opportunistic, crew,

alternate vessel/platform);

- PSO who sighted the animal;

- Time of sighting;
- Vessel location at time of sighting;
- Water depth;
- Direction of vessel's travel (compass direction);
- Direction of animal's travel relative to the vessel;
- Pace of the animal;
- Estimated distance to the animal and its heading relative to vessel at initial sighting;
- Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified); also note the composition of the group if there is a mix of species;
- Estimated number of animals (high/low/best);
- Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
- Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
- Detailed behavior observations (*e.g.*, number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);
- Animal's closest point of approach and/or closest distance from the center point of the acoustic source;
- Platform activity at time of sighting (*e.g.*, deploying, recovering, testing, data acquisition, other);

- Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up, speed or course alteration, etc.) and time and location of the action.

Although not anticipated, if a North Atlantic right whale is observed at any time by PSOs or personnel on any project vessels, during surveys or during vessel transit, Kitty Hawk Wind must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System: (866) 755-6622. North Atlantic right whale sightings in any location must also be reported to the U.S. Coast Guard via channel 16.

In the event that Kitty Hawk Wind personnel discover an injured or dead marine mammal, Kitty Hawk Wind would report the incident to the NMFS Office of Protected Resources (OPR) and the NMFS Southeast Marine Mammal Stranding Network (1-877-942-5343) if the sighting is in North Carolina or the Northeast Stranding Network (1-866-755-6622) if the sighting is in Virginia as soon as feasible. The report would include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

In the unanticipated event of a ship strike of a marine mammal by any vessel involved in the activities covered by the IHA, Kitty Hawk Wind would report the incident to the NMFS OPR and the NMFS Southeast Marine Mammal Stranding

Network (1-877-942-5343) if the sighting is in North Carolina or the Northeast Stranding Network (1-866-755-6622) if the sighting is in Virginia as soon as feasible but within 24 hours. The report would include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Species identification (if known) or description of the animal(s) involved;
- Vessel's speed during and leading up to the incident;
- Vessel's course/heading and what operations were being conducted (if applicable);
- Status of all sound sources in use;
- Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
- Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
- Estimated size and length of animal that was struck;
- Description of the behavior of the marine mammal immediately preceding and following the strike;
- If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
- Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
- To the extent practicable, photographs or video footage of the animal(s).

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects

on annual rates of recruitment or survival (*i.e.*, population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS’s implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.*, as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

To avoid repetition, our analysis applies to all the species listed in Table 6, given that NMFS expects the anticipated effects of the survey to be similar in nature. Where there are meaningful differences between species or stocks—as is the case of the North Atlantic right whale—they are included as separate subsections below. NMFS does not anticipate that serious injury or mortality would occur as a result from HRG surveys, even in the absence of mitigation, and no serious injury or mortality is proposed to be authorized. As discussed in the **Potential Effects of Specified Activities on Marine Mammals and their Habitat** section above, non-auditory physical effects and vessel strike are not expected to occur. NMFS expects that all potential takes would be in the form of short-term Level B behavioral harassment in the form of temporary avoidance of the area or decreased foraging (if such activity was occurring), reactions that are considered to be of low severity and with no lasting biological consequences (*e.g.*, Southall *et al.*, 2007). Even repeated Level B harassment of some small subset of an

overall stock is unlikely to result in any significant realized decrease in viability for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. As described above, Level A harassment is not expected to occur given the nature of the operations, the estimated size of the Level A harassment zones, and the required shutdown zones for certain activities.

In addition to being temporary, the maximum expected harassment zone around a survey vessel from sparker use is 445 m and 13 m from boomer use. The ensonified area surrounding each vessel is relatively small compared to the overall distribution of the animals in the area and their use of the habitat. Feeding behavior is not likely to be significantly impacted as the impacts of the surveys are limited to very small areas around each vessel, prey species are mobile and are broadly distributed throughout the survey area; therefore, marine mammals that may be temporarily displaced during survey activities are expected to be able to resume foraging once they have moved away from areas with disturbing levels of underwater noise. Because of the temporary nature of the disturbance and the availability of similar habitat and resources in the surrounding area, the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or their populations.

There are no rookeries, mating or calving grounds known to be biologically important to marine mammals within the survey area and there are no feeding areas known to be biologically important to marine mammals within the survey area. There is no designated critical habitat for any ESA-listed marine mammals in the survey area.

North Atlantic Right Whales

The status of the North Atlantic right whale population is of heightened concern and, therefore, merits additional analysis. As discussed in the notice of proposed IHA (86 FR 17783; April 6, 2021), elevated North Atlantic right whale mortalities began in June

2017 and there is an active UME. Overall, preliminary findings support human interactions, specifically vessel strikes and entanglements, as the cause of death for the majority of right whales. As noted previously, the survey area overlaps a migratory corridor BIA for North Atlantic right whales. Due to the fact that the survey activities are temporary and the spatial extent of sound produced by the survey will be very small relative to the spatial extent of the available migratory habitat in the BIA, right whale migration is not expected to be impacted by the survey. Given the relatively small size of the ensonified area, it is unlikely that prey availability would be adversely affected by Kitty Hawk Wind's proposed survey operations. Required vessel strike avoidance measures would also decrease risk of ship strike during migration; no ship strike is expected to occur during Kitty Hawk Wind's proposed activities. Additionally, only very limited take by Level B harassment of North Atlantic right whales has been requested and is proposed to be authorized by NMFS as Kitty Hawk Wind's proposed survey operations would be required to maintain a shutdown zone of 500 m if a North Atlantic right whale is observed. The 500 m shutdown zone for right whales is conservative, considering the Level B harassment isopleth for the most impactful acoustic source (*i.e.*, sparker- which would not be used on all survey days) is estimated to be 445 m, and thereby minimizes the potential for behavioral harassment of this species. As noted previously, Level A harassment is not expected due to the characteristics of the signals produced by the acoustic sources planned for use; this finding is further enforced by the proposed mitigation measures. NMFS does not anticipate North Atlantic right whales takes that would result from Kitty Hawk Wind's activities would impact annual rates of recruitment or survival. Thus, any takes that occur will not result in population level impacts.

Other Marine Mammal Species with Active UMEs

As discussed above, there are several active UMEs occurring in the vicinity of Kitty Hawk Wind's survey area. Elevated humpback whale mortalities have occurred

along the Atlantic coast from Maine through Florida since January 2016. Of the cases examined, approximately half had evidence of human interaction (ship strike or entanglement). The UME does not yet provide cause for concern regarding population-level impacts. Despite the UME, the relevant population of humpback whales (the West Indies breeding population, or DPS) remains stable at approximately 12,000 individuals.

Beginning in January 2017, elevated minke whale strandings have occurred along the Atlantic coast from Maine through South Carolina, with highest numbers in Massachusetts, Maine, and New York. This event does not provide cause for concern regarding population level impacts, as the likely population abundance is greater than 20,000 whales.

The proposed mitigation measures are expected to reduce the number and/or severity of takes for all species listed in Table 6, including those with active UMEs, to the level of least practicable adverse impact. In particular they would provide animals the opportunity to move away from the sound source throughout the survey area before HRG survey equipment reaches full energy, thus preventing them from being exposed to sound levels that have the potential to cause injury (Level A harassment) or more severe Level B harassment. No Level A harassment is anticipated, even in the absence of mitigation measures, or proposed for authorization.

NMFS expects that takes will be in the form of short-term Level B behavioral harassment by way of brief startling reactions and/or temporary vacating of the area, or decreased foraging (if such activity was occurring)—reactions that (at the scale and intensity anticipated here) are considered to be of low severity, with no lasting biological consequences. Since both the sources and marine mammals are mobile, animals will only be exposed briefly to a small ensonified area that might result in take. Additionally, the proposed mitigation measures would further reduce exposure to sound that could result in more severe behavioral harassment.

In summary and as described above, the following factors preliminarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No mortality or serious injury is anticipated or proposed to be authorized;
- No Level A harassment (PTS) is anticipated, even in the absence of mitigation measures, or proposed to be authorized;
- Foraging success is not likely to be significantly impacted as effects on species that serve as prey species for marine mammals from the survey are expected to be minimal;
- The availability of alternate areas of similar habitat value for marine mammals to temporarily vacate the survey area during the planned survey to avoid exposure to sounds from the activity;
- Take is anticipated to be by Level B behavioral harassment only consisting of brief startling reactions and/or temporary avoidance of the survey area;
- While the survey area is within areas noted as a migratory BIA for North Atlantic right whales, the activities will occur in such a comparatively small area such that any avoidance of the survey area due to activities will not affect migration. In addition, the requirement to shut down at 500 m to minimize potential for Level B behavioral harassment would limit the effects of the action on migratory behavior of the species; and
- The proposed mitigation measures, including visual monitoring and shutdowns, are expected to minimize potential impacts to marine mammals.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS preliminarily finds

that the total marine mammal take from the activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one third of the species or stock abundance, the take is considered to be of small numbers. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities. For this IHA, take of all species or stocks is below one third of the estimated stock abundance (in fact, take of individuals is less than 7 percent of the abundance for all affected stocks).

Based on the analysis contained herein of the proposed activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS preliminarily finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act

Section 7(a)(2) of the ESA of 1973 (16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally whenever we propose to authorize take for endangered or threatened species.

NMFS is proposing to authorize take, by Level B harassment only, of North Atlantic right whales, fin whales, and sei whales which are listed under the ESA. On June 29, 2021 (revised September 2021), GARFO completed an informal programmatic consultation on the effects of certain site assessment and site characterization activities to be carried out to support the siting of offshore wind energy development projects off the U.S. Atlantic coast. Part of the activities considered in the consultation are geophysical surveys such as those proposed by Kitty Hawk Wind and for which we are proposing to authorize take. GARFO concluded site assessment surveys are not likely to adversely affect endangered species or adversely modify or destroy critical habitat. NMFS has determined issuance of the IHA is covered under the programmatic consultation; therefore, ESA consultation has been satisfied.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to Kitty Hawk Wind for conducting marine site characterization surveys off the coast of North Carolina and Virginia, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. A draft of the proposed IHA can be found at <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

Request for Public Comments

We request comment on our analyses, the proposed authorization, and any other aspect of this notice of proposed IHA for the proposed marine site characterization surveys. We also request at this time comment on the potential Renewal of this proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform decisions on the request for this IHA or a subsequent Renewal IHA.

On a case-by-case basis, NMFS may issue a one-time, one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical or nearly identical, or nearly identical, activities as described in the **Description of Proposed Activity** section of this notice is planned or (2) the activities as described in the **Description of Proposed Activity** section of this notice would not be completed by the time the IHA expires and a Renewal would allow for completion of the activities beyond that described in the *Dates and Duration* section of this notice, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to the needed Renewal IHA effective date (recognizing that the Renewal IHA expiration date cannot extend beyond one year from expiration of the initial IHA);
- The request for renewal must include the following:
 - (1) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (*e.g.*, reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take); and
 - (2) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

Dated: February 2, 2022.

Kimberly Damon-Randall,

Director, Office of Protected Resources,

National Marine Fisheries Service.

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